

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kunihiko Tsukagoshi, et al

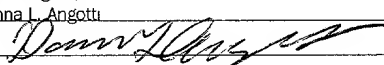
Continuation
Application
of Serial No. : 09/195,473

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Name: Donna L. Angotti

Signature: 

Filed: November 18, 1998

Filed : April 20, 2001

Title : DIFFERENTIAL AMPLIFIER CIRCUIT FOR AN OSCILLATION
CIRCUIT

Examiner : not yet known

Group Art Unit : not yet assigned

PRELIMINARY AMENDMENT

Sir:

Please amend the above-identified Application as follows:

IN THE SPECIFICATION:Page 1, Line 7, After the subtitle "Description of the Related Art", add the
following:--This Application is a Continuation Application of Serial No.:
09/195,473 filed November 18, 1998.--;

Page 7, Line 25, change "on" to --of--;

Page 10, Line 3, change "associate" to --associated--; and

Page 14, Line 4, change "transistor 1" to --transistor 11--.

IN THE CLAIMS:

Please cancel claims 1, 2, 3 and 6 of the Continuation Application filed herewith.

Please add Claims 7 and 8 as follows:

7. An oscillation circuit, comprising:

a first differential amplifier circuit including a differential input portion comprising a pair of MOS transistors of a first conductivity type;

a second differential amplifier circuit including a differential input portion comprising a pair of MOS transistors of a second conductivity type; and

an oscillator having a first signal and second signal from first and second terminals, respectively, each of said first and second signals having an operating point potential that is different than the other and each of said first and second signals being input to both said first and second differential amplifier circuits to generate differential amplification outputs based on said first and second signals;

wherein the differential amplification outputs of said first and second differential amplification circuits are combined to provide an output.

8. An oscillation circuit, comprising:

an oscillator having a first signal and a second signal from first and second terminals, respectively, each of said first and second signals having an operating point potential that is different than the other;

a first MOS transistor of a first conductivity type having a source, a drain and a gate, and receiving said first signal at the gate thereof;

a second MOS transistor of the first conductivity type having a source, a drain and a gate, and receiving said second signal at the gate thereof;

a first current mirror circuit comprising a third and a fourth MOS transistors of a second conductivity type each having a source, a drain and a gate, the drains of said third and fourth MOS transistor being connected to the drains of said first and second MOS transistors, respectively, the gates of the third and fourth MOS transistors connected to each other and the gate and drain of said third MOS transistor;

a fifth MOS transistor of the second conductivity type having a source, a drain and a gate, and receives the first signal at the gate thereof;

a sixth MOS transistor of the second conductivity type having a source, a drain and a gate, and receiving the second signal at the gate thereof;

a second current mirror circuit comprising a seventh and an eighth MOS transistors of the first conductivity type each having a source, a drain and a gate, the drains of said seventh and eighth MOS transistors being connected to the drains of said fifth and sixth MOS transistors, respectively, the gates of the seventh and eighth MOS transistors being connected to each other and the gate and drain of said seventh MOS transistor being connected; and

an output buffer circuit for generating an output signal based on a signal generated at the drain of said fourth MOS transistor and a signal generated at the drain of said eighth MOS transistor.

Please amend Claim 4 as follows:

Claim 4, Lines 1 and 2, change "claim 2" to --claim 8--.

Claim 4 will appear as follows:

4. The differential amplifier circuit according to claim 8, wherein said output buffer circuit comprises a ninth MOS transistor of the second conductivity type having a source, a drain and a gate which is connected to the drain of said fourth MOS transistor and a tenth MOS transistor of the first conductivity type having a source, a drain and a gate which is connected to the drain of said eighth MOS transistor, and the drains of said ninth and tenth MOS transistors are connected to each other to generate an output signal at the connection point.

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REMARKS

This Application continues the prosecution of the claims which were not allowed in the parent Application.

The Amendment of December 5, 200, filed in the parent Application Serial No.: 09/195,473, was not entered in its entirety.


Claims 7 and 8 are substituting Claims 1 and 2 of the parent Application with changes to reflect the comments in the Advisory Action. These amendments were not previously entered as raising new issues and requiring a further search.

The Claims no longer state that the oscillator "generates" the first and second signals.

Favorable reconsideration is respectfully requested.

Attached hereto is a marked-up version of the changes to the Claims captioned "Version with Markings to Show Changes Made." The deleted subject matter is shown in brackets and the added subject matter is underlined.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE - SN: 09/195,473

4. The differential amplifier circuit according to [claim 2,] claim 8, wherein said output buffer circuit comprises a ninth MOS transistor of the second conductivity type having a source, a drain and a gate which is connected to the drain of said fourth MOS transistor and a tenth MOS transistor of the first conductivity type having a source, a drain and a gate which is connected to the drain of said eighth MOS transistor, and the drains of said ninth and tenth MOS transistors are connected to each other to generate an output signal at the connection point.

7. An oscillation circuit, comprising:

a first differential amplifier circuit including a differential input portion comprising a pair of MOS transistors of a first conductivity type;

a second differential amplifier circuit including a differential input portion comprising a pair of MOS transistors of a second conductivity type; and

an oscillator [for generating] having a first signal and second signal from first and second terminals, respectively, each of said first and second signals having an operating point potential that is different than the other and each of said first and second signals being input to both said first and second differential amplifier circuits to generate differential amplification outputs based on said first and second signals;

wherein the differential amplification outputs of said first and second differential amplification circuits are combined to provide an output.

8. An oscillation circuit, comprising:

an oscillator [for generating] having a first signal and a second signal from first and second terminals, respectively, each of said first and second signals having an operating point potential that is different than the other;

a first MOS transistor of a first conductivity type having a source, a drain and a gate, and receiving said first signal at the gate thereof;

a second MOS transistor of the first conductivity type having a source, a drain and a gate, and receiving said second signal at the gate thereof;

a first current mirror circuit comprising a third and a fourth MOS transistors of a second conductivity type each having a source, a drain and a gate, the drains of said third and fourth MOS transistor being connected to the drains of said first and second MOS transistors, respectively, the gates of the third and fourth MOS transistors connected to each other and the gate and drain of said third MOS transistor;

a fifth MOS transistor of the second conductivity type having a source, a drain and a gate, and receives the first signal at the gate thereof;

a sixth MOS transistor of the second conductivity type having a source, a drain and a gate, and receiving the second signal at the gate thereof;

a second current mirror circuit comprising a seventh and an eighth MOS transistors of the first conductivity type each having a source, a drain and a gate, the drains of said seventh and eighth MOS transistors being connected to the drains of said fifth and sixth MOS transistors, respectively, the gates of the seventh and eighth MOS transistors being connected to each other and the gate and drain of said seventh MOS transistor being connected; and

an output buffer circuit for generating an output signal based on a signal generated at the drain of said fourth MOS transistor and a signal generated at the drain of said eighth MOS transistor.